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GUIDELINES FOR A ONE-ON-ONE
TACTICAL COURSE FOR RIFLEMEN

TRAINING TECHNICAL AREA

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FOREWORD

The Training Technical Area of the United States Army Research Institute for the Behavioral and Social Sciences (ARI) conducts research on skill acquisition, retention and transfer. The purpose of this research product is to provide a method to further develop the technology necessary to field training systems that enhance individual job performance.

This product provides the guidelines for conducting a training and evaluation exercise for individual riflemen utilizing freeplay-interactive and weapons simulation methods. The methods of the exercise contain objective assessment without a loss of training utility and combat realism.

The authors acknowledge the valuable comments and assistance of Mr. David Hannaman of HumRRO and Dr. Douglas Ramsay of ARI. This product was developed by personnel from ARI as part of Army Project 2Q263743A794, FY 82.

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GUIDELINES FOR A ONE-ON-ONE TACTICAL COURSE FOR RIFLEMEN

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GUIDELINES FOR A ONE-ON-ONE TACTICAL COURSE FOR RIFLEMEN

INTRODUCTION

The US Army has long recognized the value of administering performance tests to individual soldiers. The hands-on components of the Skill Qualification Tests are prominent examples of such tests and their current state of development reflects their strengths and limitations. Although perceived as relevant samples of soldier skills, existing hands-on tests assess only tasks which contain inflexible performance components. Existing hands-on tests have not incorporated tasks involving interactional skills. For example, soldiers train and are tested on marksmanship, but are not individually evaluated on the use of the M16 as a component of an infantryman's weapon system. Successful weapons use requires continually adapting skills according to the situation and the immediate objective. In 1981, the U.S. Army Research Institute sponsored the development of a prototype exercise for individual infantrymen that contained interactive freeplay opposing forces. The exercise proved effective in the training and evaluation of individual rifle and grenade tactics for both defenders and attackers. The Multiple Integrated Laser Engagement Simulation (MILES) system provided fidelity to the exercise. The experience and data garnered from the prototype exercise provided the basis for the design of an improved one-on-one infantryman's exercise. The revised exercise maintains the freeplay and interactive features of the prototype while enabling a quantitative assessment of individual tactical skills. Although tactical skills training is the major purpose of this current version of the exercise, development of local standards will give it the attributes of an individual performance test.

Purpose

The purpose of this exercise is to train the participants in individual tactical skills.

Approach

The elemental battle, one-on-one, provides the basis for a training exercise which enables squad leaders to observe, diagnose, and coach squad members on individual tactics. One attacker attempts to take a defensive position manned by one defender. Each player is closely observed and scored by his squad leader or an NCO highly qualified in individual tactics. The course layout and rules are designed so that a high degree of standardization is obtainable with little sacrifice of realism. MILES equipment and handgrenade simulators are used.

Scenario

The defender is charged with protecting a sector of the battlefield. He is armed with an M16. The attacker, also armed with an M16 and grenades, has the mission of approaching and attacking the defensive position with rifle fire and grenades.

REQUIREMENTS OF A ONE-ON-ONE COURSE

Course Layout

Figure 1 describes the layout of a sample "one-on-one" training station. The course must provide terrain features with natural cover for the non-detection approach area, staging, and completion areas. Players awaiting a run on the course or gathering after completing an exercise should be isolated from seeing other players on the course by terrain features. It is important that some aspect of the ground (hill, depressions, etc.) or growth limits the defender from detecting any attacker while beyond the line of detection. Mark the general route of the attacker clearly with 10 meter interval markers beginning at the start position. Place markers, as necessary, to identify the lateral boundaries of the course. The approximate width of the course is 14 meters or 7 meters left and right from each 10 meter interval marker. Position markers so that they are in clear view of the attacker and scorer, but hidden from the defender. Designate a "mined" area approximately 10 - 15 meters out from the defender's position. This mined area will limit the extent of the attacker's advance to avoid pointblank attack.

Construct the defender's position as an "open position" with sandbags and logs protecting the front and sides of 3'x3'x5' hole.

Again, it is important that all staging areas are isolated so that soldiers cannot directly observe or interfere with ongoing course activity. The isolation of nonplayers from the course prevents them from learning the tactics of earlier or later players to develop their own strategy. This isolation will help insure, to some degree, that individuals start each exercise with similar amounts of experience.

Finally, use some method of coding the markers which identify the three hit zones in the approach area for the attacker's scorer. It is important that the scorer for the attacker know what zones any hits occur in, but not provide the attacker with a tactical approach determined by the location of the hit zone limits.

Personnel Requirements

Two scorers, E-6 or above, 11B series MOS or combat arms officer. One scorer will position himself with the defender and the other will move with the attacker.

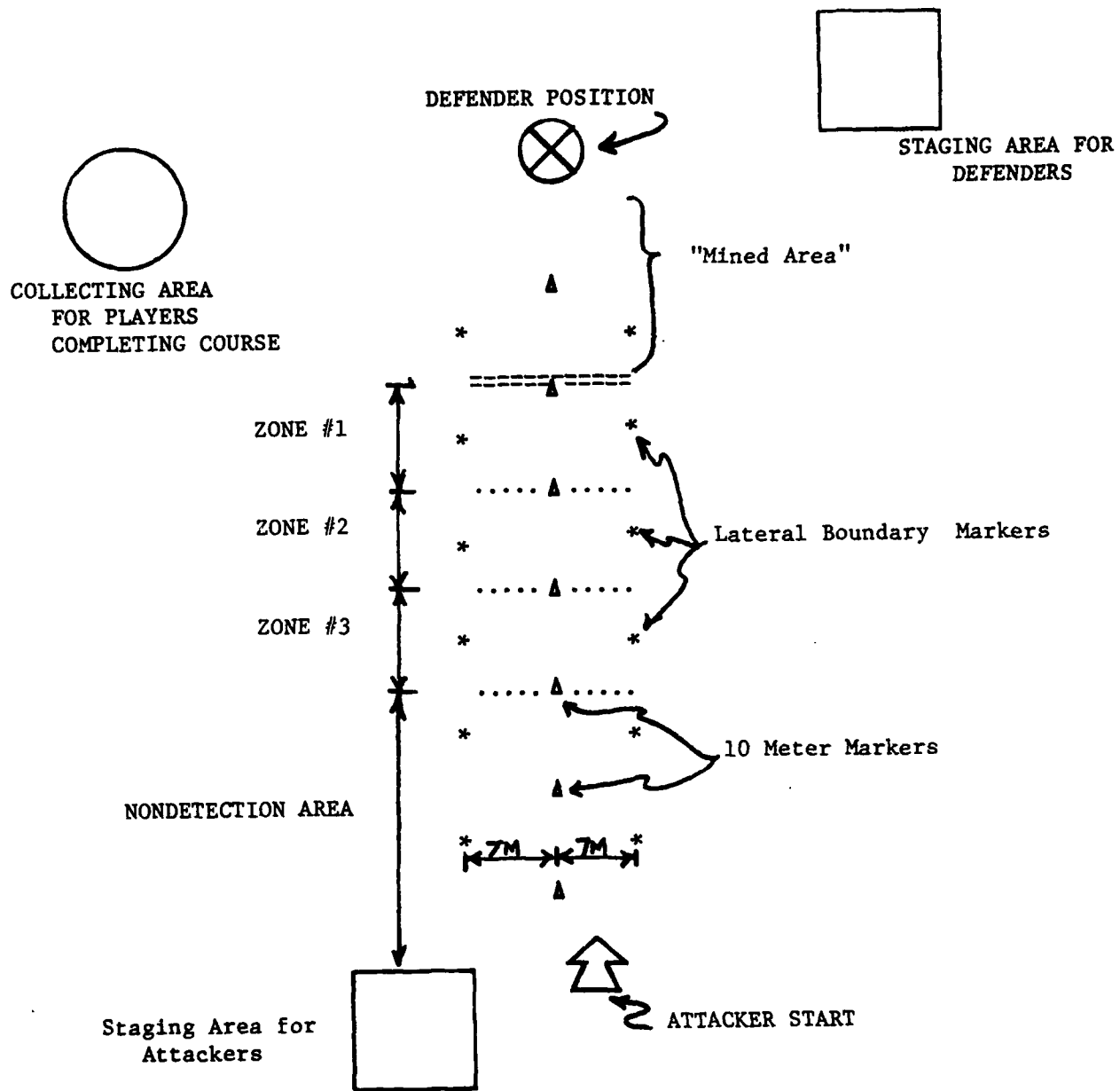


Figure 1. One-On-One Training Station.

Both scorers will record the number of times the observed player is hit and the zone location when appropriate. Specific instructions for scoring are found in sections "General Procedures for Scorers" and "Instruction to Scorers."

Equipment Requirements

- o one, black, blue or red, permanent ink magic marker for placing numbers on distance markers
- o 10-12, 5"X6"X.020", high impact, polystyrene distance marker cards
- o hammer and nails - enough to nail distance markers onto trees
- o one, 50M tape
- o picks and shovels to prepare defensive position
- o thirty sandbags (optional, if deadfall is used)
- o six (6) practice hand grenades (DoDAC 1330G818) with sufficient fuzes (DoDAC 1330G878) to allow three grenades per exercise
- o two M16A1's with blank adaptors (one per rifleman) with sufficient 5.56 blank ammunition (DoDAC 1305A080) to allow 20 rounds per player
- o two sets of MILES infantryman sensors, i.e., torso and helmet harness i.e., one for each rifleman (others may be required to decrease time required for test subjects to exchange MILES equipment)
- o two clipboards and two ball point pens for scorers
- o two radios, AN/PRC-77 or AN/PRC-68 (each scorer will be given a radio)

INSTRUCTIONS TO SCORERS

It is important that all scorers familiarize themselves with the rules of the exercise, the scoresheets for both players, the procedures involved, and the course layout. The "General Procedures for Scorers" section, which follows, should provide the necessary information on the operating and scoring procedures. All scorers should experience for themselves both the attacking and defending roles and how they are scored by making practice runs before running trainees. This familiarization will assist scorers in noting locations on the course to observe performance and record scores without interfering or "giving away" the

players during the exercise. Practice runs should also be made to troubleshoot any aspect of this exercise. Most of the requirements contained in these instructions are structural guidance and will require adaptation to the particular course or the skill of the soldiers who use it. Scorers are ultimately responsible for the effectiveness of one-on-one training. Aspects of the one-on-one training which may require local adaptation are:

- a. Number of rounds - Either player might well use more or less and benefit from the exercise equally as well.
- b. 10 hits on the attacker to kill - Here again, revise this requirement if 10 hits are impossible or maybe too easy.
- c. Score values for hits (inflicted and received) - Because of terrain and cover the zone values should be adjusted if, for instance, Zone 3 is so wooded that very few receive a hit. Increase the score value for hits.
- d. Course Layout - Dimensions and distances are approximate. Use the natural terrain features to lay out the course. Maintain the different zones, detection line, and mined area with whatever distances the terrain provides.
- e. Rated Skills (Attacker only) - Add or delete any skill you think appropriate. If traditional skills are inappropriate for this course and other ones more important, make the changes.
- f. Course Markers - Position markers so they provide guidance, but not artificially give an advantage to either player.

Your most difficult task as scorers will be your positioning. Remember, you must be in position to record the activity of the players, but not provide the opposition with any "giveaways" or advantage. Also, if your player seems to be stuck in position or pinned down, he might need some advice from you. If a player seems to be stalling or using too much time, prompt him to move out. Try to maintain a position which can fulfill your role as a scorer, an advisor (when needed), and a neutral feature of the terrain from the opposition's viewpoint.

Once an exercise is completed, record all the necessary information on the player's scoresheet before starting another session. It is important that the scoresheets of both players of an exercise be kept together. From the standpoint of training, it would be useful if players are debriefed on their performance in a group setting. With both attacker and defender scoresheets, a scorer could replay the action, highlighting important events for both players. If the group is large, a typical sample

exercise might be analyzed for discussion and training. Remember the "one-on-one" exercise is whatever you make it.

GENERAL PROCEDURES FOR SCORERS

- I. Fill in appropriate ID information on scoresheet for player.
- II. Read verbal instructions to player.
- III. Make a radio communication and ready check with opposition scorer.
- IV. Announce to both opposition and player that the exercise has begun .
- V. Stop the exercise for any of these conditions:
 - A. The attacker or defender receives 10 hits.
 - B. The attacker uses all his ammo and grenades.
 - C. Either scorer judges a need for stopping the exercise, (e.g., injury, equipment failure, dangerous situation, etc.)
- VI. Scoring
 - A. Perform scoring procedures (Attacker)
 1. Communicate "HIT" over the radio to the defender's scorer if attacker is the first to be hit.
 2. Record each hit received by marking an "H" in the appropriate zone and location on the Attacker Scoresheet.
 3. Tabulate each time the attacker engages the defender with rifle fire by using a slash (/) in the space next to the corresponding zone on the scoresheet.
 4. Indicate by means of a small circle (o) the course location where each grenade was thrown.
 5. Rate the attacker on tactical skills.
 - B. Perform scoring procedures (Defender)
 1. Communicate "HIT" over the radio to the attacker's scorer if the defender is the first to be hit.
 2. Record each hit received by a tally mark in the appropriate place on Defender Score sheet.
 3. Conditions for a grenade hit are: grenade must go off within 5 meters of an exposed defender or grenade must go off in an air burst above the defender's position
- VII. Consolidate score sheets
 - A. Weapon scores. For each run, scorers must compare scoresheets to obtain the hits inflicted by each player. The scorer for the attacker will obtain the hits inflicted by his player by noting the number of hits received by the defender. The scorer for the defender will obtain the hits inflicted by his player by not-

ing the hits received by the attacker and the zones in which they were received. The attacker's weapons score is 2 times each hit by riflefire and 4 times each grenade hit inflicted plus a first hit bonus, if applicable. The defender's weapons score is 3 times each hit inflicted in Zone 3 (the farthest distance), plus 2 times each hit inflicted in Zone 2, plus the hits in Zone 1, plus the "first hit" bonus, if applicable.

- B. Vulnerability scores. The vulnerability score for the attacker is obtained by multiplying the number of hits received in Zone 3 by -3, in Zone 2 by -2, Zone 1 by -1, and adding the numbers obtained. For the defender, the vulnerability score is -3 times the number of hits received.
- C. Ratings of tactical skill. Complete a player's rating before score sheet consolidation. The purpose of the ratings is to give participants constructive feedback. Specific comments on a participant's tactics should be made whenever possible. Trial runs by scorers competing against each other will sharpen judgments as to the appropriate tactics and the pitfalls of a particular course.

VIII. Scoring Rationale

- A. Attacker - A score of 2 points by riflefire and 4 points by grenade for each "hit" inflicted on the defender will be awarded to the attacker. A grenade throw is scored a hit if it lands within 5 meters of the defender and goes off while the defender is exposed or bursts in the air over the defender's position. Additionally, a bonus of 20 points can be scored (by either player) for inflicting the first hit of each exercise. This bonus reflects the importance of "first hit" in a real battle. The maximum possible points for weapons used by an attacker is 46 (7 rifle, 3 grenade hits). Conversely, because receiving hits are liabilities, negative scores will be given for each hit received by the attacker. Hits received at further distances from the defensive position will carry more negative value than hits taken closer in. For example, hits taken in Zone 3, the farthest from the defensive position, will be given -3 with Zone 2 receiving -2 points and Zone 1 given a -1 point for any hits received. If the attacker receives 10 hits, the exercise is ended. The worst possible score for hits received is -30. Since the individual's relative vulnerability in approaching the defensive position is reflected in this score, it is called his Vulnerability Score.

B. Defender - The weapon's score for the defensive rifleman is determined by the zone in which he inflicts hits on the attacker. The zone farthest from his position (Zone 3) has the highest point value for an inflicted hit. Consequently, Zone 3 is scored 3 points, Zone 2 is worth 2 points and Zone 1 is worth a single point for each hit inflicted. The graduated scoring in this instance should promote contact by the defender at the earliest opportunity. Although the defensive player is allotted 20 rounds, 10 inflicted hits will stop the exercise. It is thus, the defender's goal to inflict 10 hits at the furthest distances out while minimizing hits received from the attacker. Again, the defender can be awarded the 20 point bonus for inflicting the first hit of the exercise. As with the attacking player, a vulnerability score will be tallied from the number of hits received from the rifle and grenade assault. Each hit received will be scored -3 with a possible total of -30 for the exercise (10 hit maximum). It should be extremely unlikely for a defender to be hit 10 times.

IX. Score Interpretation - The set of opposing scores tallied for the players of each exercise are not comparable in any absolute manner. The value of the attacker's score has only a relative meaning to a particular defensive player's score. Highly skilled players will not score well when matched against other highly skilled players. In contrast, low skilled players may or may not score well when matched against another low skilled player. Accumulated scores for several soldiers playing the same position, by contrast, may have some comparative meaning. But even in this instance, some account must be given to the effectiveness of the different opposing players. Any player's two scores (weapons and vulnerability) are the result of his and his opponent's tactical and weapon's effectiveness in the one-on-one exercise.

Because of the interactive quality of the weapons and vulnerability scores, tactical ratings and comments by the scorer for each player will provide some perspective to a soldier's scores. Although local norms may give some basis for identifying a score as good, bad, or average; it is of equal importance to document how it was achieved. Improvement in tactics is the objective of the exercise and scores by themselves cannot reveal whether or not it is taking place when all players are becoming more proficient. For this reason, it is necessary that experienced scorers, experienced on the one-on-one course and in combat tactics, conscientiously complete the tactics rating portion of each scoring form.

INSTRUCTIONS TO DEFENDER

The scorer positioned with the soldier in the defensive position should read the following instructions aloud to each defender:

YOU ARE TO OCCUPY THIS POSITION AND DEFEND IT TO THE BEST OF YOUR ABILITY USING ONLY THE M16 AND 20 ROUNDS OF AMMUNITION WHICH YOU HAVE BEEN PROVIDED. YOU WILL BE ATTACKED FROM THIS GENERAL DIRECTION. (Point in direction from which attacker will advance). YOU ARE NOT TO LEAVE THIS POSITION. YOUR FIRST OBJECTIVE IS TO DETECT AND HIT THE ATTACKER BEFORE HE HITS YOU. THIS IS WORTH 20 BONUS POINTS. BOTH YOU AND THE ATTACKER CAN RECEIVE UP TO TEN HITS AND CONTINUE YOUR MISSIONS. IF EITHER OF YOU IS HIT TEN TIMES, THE EXERCISE WILL BE STOPPED. LONG RANGE HITS ARE WORTH MORE THAN SHORT RANGE HITS. THE ATTACKER IS ARMED WITH BOTH AN M16 AND GRENADES.

ANY QUESTIONS? (Respond to questions and inform the attacker's scorer that the defender is ready).

INSTRUCTIONS TO ATTACKER

The scorer accompanying the attacker should read aloud the following instructions before proceeding onto the course:

THERE IS AN ENEMY POSITION ROUGHLY FIFTY METERS IN THAT DIRECTION. (Point to general direction of defensive position). IT IS MANNED BY ONE DEFENDER. YOU HAVE BEEN PROVIDED AN M16, TWENTY ROUNDS OF AMMUNITION, AND THREE HANDGRENADES. YOU ARE TO USE YOUR BEST TACTICAL SKILLS TO ASSAULT THAT POSITION. I WILL BE FOLLOWING YOU CLOSELY TO MONITOR YOUR PERFORMANCE. IF YOU ARE ABLE TO HIT THE DEFENDER BEFORE HE HITS YOU, YOU WILL BE AWARDED 20 POINT BONUS

REGARDLESS OF WHO INFLECTS THE FIRST HIT, THE MISSION WILL CONTINUE UNTIL ONE OF THREE THINGS HAPPENS: ONE OF YOU GETS HIT TEN TIMES, YOU THROW ALL THREE OF YOUR GRENADES AND USE ALL YOUR AMMO, OR I STOP THE EXERCISE. YOU ARE NOT ALLOWED TO ENTER THE DESIGNATED MINED AREA PROTECTING THE DEFENSIVE POSITION. YOU MUST ALSO STAY INSIDE THE BOUNDARIES OF THE COURSE. THESE BOUNDARIES ARE 7 METERS ON EITHER SIDE OF MARKERS PLACED IN TREES LEADING TO THE DEFENSIVE POSITION. I WILL TELL YOU IF YOU ARE OUT OF BOUNDS.

DO YOU HAVE ANY QUESTIONS? (Respond to questions and notify defender scorer that the attacker is ready. Get attacker going onto course).

ATTACKER SCORESHEET

Scorer Name _____
Exercise N _____ for
Date _____ at Ft _____

Player Name				Rank:	E -
Last	First	MI			

SSN - - Unit: Squad Platoon Company BN

Player Experience Attacker _____ time(s) before and/or
 Defender _____ time(s) before

Exercise Record

Use the course diagram and the symbols below to indicate the location of each hit received and where each grenade is thrown from. Record each round fired.

"H" - hit recieved
"O" - grenade thrown

1. 20 POINT First Hit Bonus YES NO (Circle one)

DEFENDER

✱

MINED AREA

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Zone 1 - Rounds Fired =
(e.g. / / / /)

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Zone 2 - Rounds Fired =
(e.g. 1111)

 Springer

Zone 3 - Rounds Fired =
(e.g. 1111)

.....

Detection Limit

START

Stop exercise if Attacker receives 10 hits.

Comments:

Rate this player on each of the following tactical skills:

1. Use of cover	1	2	3	4	5	
2. Firing position	1	2	3	4	5	
3. Noise control	1	2	3	4	5	1 = poor
4. Selection of route	1	2	3	4	5	2 = less than
5. Selection of movement techniques	1	2	3	4	5	3 = average
						4 = better than
						5 = excellent
6. Grenade throw	1	2	3	4	5	
7. _____ (fill in, if needed)	1	2	3	4	5	
8. _____ (fill in, if needed)	1	2	3	4	5	

SCORE SUMMARY

1. (a) Riflefire hits inflicted on the Defender _____ X 2 = _____ points
(b) Grenade hits inflicted on the Defender _____ X 4 = _____ points

(c) FIRST HIT BONUS (Award 20 points, if scored) _____

(Add lines a, b & c) _____ WEAPON'S
SCORE

2. Hits received: (From Exercise Record this Scoresheet)

(d) In Zone 3 _____ X -3 = _____ points

(e) In Zone 2 _____ X -2 = _____ points

(f) In Zone 1 _____ X -1 = _____ points

_____ VULNERABILITY SCORE (Add lines d, e & f)

Defender Name _____

Scorer for the Defender _____

Comments:

DEFENDER SCORESHEET

Scorer Name _____
Exercise No. _____ for _____
Date _____ at Ft _____

Player Name	Rank: E -
Last	First
MI	

SSN _____ - _____ - _____ Unit: Squad _____ Platoon _____ Co. _____ BN _____

Player Experience Attacker_____time(s) before and/or
 Defender_____time(s) before

Exercise Record

1. 20 POINT First Hit Bonus: YES NO (Circle One)
2. Rounds Fired by Defender _____ Total = _____
(Use slashes for each shot, e.g. //)
3. Hits Received by Defender:
- a. From rifle fire _____ Total = _____
(Use slashes for each hit, e.g. //)
- b. From grenade _____ Total = _____
(Use slashes for each hit, e.g. //)
- Add a & b for HIT TOTAL = _____

4. Stop exercise and circle below if Defender receives 10 hits.

KILLED

COMMENTS:

SCORE SUMMARY

1. Hits inflicted on the Attacker: (From opposition scorer)

(a) In Zone 3 _____ X 3 = _____ points

(b) In Zone 2 _____ X 2 = _____ points

(c) In Zone 1 _____ X 1 = _____ points

(d) _____ Total Zone Points (Add lines a, b, & c)

(e) _____ FIRST HIT BONUS (Award 20 pts, if scored)

_____ WEAPONS'S SCORE (Add lines d & e)

2. Hits received: (From Exercise Record this Scoresheet)

(f) From rifle fire _____ X 3 = _____

(g) From grenades _____ X 3 = _____

_____ VULNERABILITY
SCORE (Add lines f & g)

Attacker Name _____

Scorer for the Attacker _____

Comments: